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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,685	04/26/2005	Takashi Saitoh	7412/84326	4377

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EXAMINER	
NGUYEN, TRI V	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,685	SAITOH, TAKASHI	
	Examiner	Art Unit	
	TRI V. NGUYEN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/2/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-25* is/are pending in the application.

4a) Of the above claim(s) *2,11-13 and 15-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7,9,10,14 and 22-25* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/02/08 has been entered.

Response to Amendment

2. Upon entry of the amendment filed on 05/12/08, Claim 1 is amended; Claims 2, 11-13, 15-21 are withdrawn and Claim 8 is cancelled. The currently pending claims considered below are Claims 1, 3-7, 9, 10, 14, 22-25.

3. In view of applicant's amendment and remarks, the rejection under 103(a) of claims 1, 3-5, 9-10, 14 and 22-25 over Blanchet-Fincher in view of Mitsubishi '930 or Mitsubishi '739 and claim 6 are withdrawn.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3-4, 9-10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. as applied to the claims above, and further in view of Mitsubishi '930 or Mitsubishi '739.

Chen et al. disclose a composition with carbon nanotubes, a conductive polymer such as polypyrrole which is soluble in water and a solvent such as water (parag. 15, 19 and claims 27, 58).

Chen et al. disclose the composition of claim 1 but do not explicitly disclose the presence of a basic compound and a conducting polymer with the functional groups and structure of formula (5).

In an analogous art, Mitsubishi '739 disclose a composition with the water-soluble conducting polymer of formula (5) (page 6, parag. 29-30 and page 12, parag. 59) and a basic compound (page 9, parag. 39-40) and Mitsubishi '930 disclose a composition with the water-soluble conducting polymer of formula (5) (page 4), a high molecular weight component (page 7, parag. 28), a surfactant (page 8, parag. 31) and a basic compound (page 8, parag. 34).
It would have been obvious to a chemical engineer to produce the claimed composition, as the references teach similar ingredients for the same utility. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer.

Regarding claim 14, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct,

not the examiner to show the same process of making, see In re Brown, 173 USPQ 685 and In re Fessmann, 180 USPQ 324.

6. Claims 1, 3-5, 9-10, 14 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski et al. in view of Mitsubishi '930 or Mitsubishi '739.

Glatkowski et al. disclose a composition obtained by mixing a polymer such as a conductive polymer with nanotubes and various additives such as a surfactant in a water solvent followed by stirring and sonication. The resulting solution is casted as an electrically conductive film on a substrate and dried by imparting heat (claims 1 and 15; parag. 49, 52-53, 61 and 88-89).

Although Glatkowski et al generally teaches the surfactant and conductive polymer features in their composition, the reference does not require the component(s) with sufficient specificity to constitute anticipation.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have formulated a composition, as taught by Glatkowski et al, which contained a surfactant and a conductive polymer disclosed and taught by Glatkowski et al. therefore, one of ordinary skill in the art would have had a reasonable expectation of success, because such a composition containing a surfactant and a conductive polymer is expressly suggested by the Glatkowski et al disclosure and therefore is an obvious formulation.

Glatkowski et al. disclose the composition of claim 1 but do not explicitly disclose the presence of a high molecular weight compound, a basic compound and a conducting polymer with the functional groups and structure of formula (5).

In an analogous art, Mitsubishi '739 disclose a composition with the water-soluble conducting polymer of formula (5) (page 6, parag. 29-30 and page 12, parag. 59) and a basic

compound (page 9, parag. 39-40) and Mitsubishi '930 disclose a composition with the water-soluble conducting polymer of formula (5) (page 4), a high molecular weight component (page 7, parag. 28), a surfactant (page 8, parag. 31) and a basic compound (page 8, parag. 34). It would have been obvious to a chemical engineer to produce the claimed composition, as the references teach similar ingredients for the same utility. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer.

Regarding claim 14, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show the same process of making, see In re Brown, 173 USPQ 685 and In re Fessmann, 180 USPQ 324.

7. Claims 1, 3-4, 9-10, 14 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eikos, Inc. as applied to the claims above, and further in view of Mitsubishi '930 or Mitsubishi '739.

Eikos, Inc. discloses a composition comprising a solvent, a polymeric matrix such as a conductive polymer and carbon nanotubes (abstract, claims 1, 13 and page 10, lines 7-19). The

composite obtained by mixing and sonication is applied as a coating to a substrate and dried to remove the solvent (page 11, lines 4-11 and page 17, lines 5-15).

Although Eikos, Inc. generally teaches the conductive polymer feature in its composition, the reference does not require the component(s) with sufficient specificity to constitute anticipation.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have formulated a composition, as taught by Eikos, Inc., which contained the conductive polymer disclosed and taught by Eikos, Inc. therefore, one of ordinary skill in the art would have had a reasonable expectation of success, because such a composition containing a conductive polymer is expressly suggested by the Eikos, Inc. disclosure and therefore is an obvious formulation.

Eikos, Inc. disclose the composition of claim 1 but do not explicitly disclose the presence of a high molecular weight compound, a basic compound and a conducting polymer with the functional groups and structure of formula (5).

In an analogous art, Mitsubishi '739 disclose a composition with the water-soluble conducting polymer of formula (5) (page 6, parag. 29-30 and page 12, parag. 59) and a basic compound (page 9, parag. 39-40) and Mitsubishi '930 disclose a composition with the water-soluble conducting polymer of formula (5) (page 4), a high molecular weight component (page 7, parag. 28), a surfactant (page 8, parag. 31) and a basic compound (page 8, parag. 34).
It would have been obvious to a chemical engineer to produce the claimed composition, as the references teach similar ingredients for the same utility. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). The claim would have been obvious

because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer.

Regarding claim 14, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show the same process of making, see In re Brown, 173 USPQ 685 and In re Fessmann, 180 USPQ 324.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski et al., Eikos, Inc. or Chen et al. in view of Mitsubishi '930 or Mitsubishi '739 as applied to claim 1 above, and further in view of Hsu.

Glatkowski et al., Eikos, Inc., or Chen et al. in view of Mitsubishi '930 or Mitsubishi '739 disclose the composition of claim 1 but do not explicitly disclose the inclusion of a colloidal silica component.

In an analogous art, Hsu discloses an electrically conductive composition with a colloidal component (page 5, parag. 71-72 and example 7, page 13). It would be obvious to a skilled artisan to use a silane component to control the rheology of the nanocomposite. Furthermore, it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, see *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). The

claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan.

Allowable Subject Matter

9. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The most pertinent prior art known to the Examiner is listed on the attached forms PTO-892 and 1449. As shown by Glatkowski et al., Eikos, Inc., or Chen et al., the close prior arts of record, a carbon nanotube composition that includes conducting polymers, a water solvent component and carbon nanotubes are well-known. Furthermore, Mitsubishi '930 or Mitsubishi '739 teach the specific conducting polymer. However, none of the prior art of record including Glatkowski et al., Eikos, Inc., or Chen et al. and Mitsubishi '930 or Mitsubishi '739 provides sufficient suggestion or motivation to include the silane component of formula (1) as required in the present claims. Accordingly, the claimed invention, as a whole, would not have been obvious to one of ordinary skill in the nanotechnology art. None of the prior art of record teaches, discloses or suggests the composition with all four ingredients - (1) a water soluble conducting polymer with an acidic group, (2) a water solvent, (3) carbon nanotubes and (4) the specfici silane component in the manner as those recited the present claims.

Response to Arguments

10. Applicant's arguments, see pages 22, 23 and 25, filed 05/12/08, with respect to claims 1, 3-5, 9-10, 14 and 22-25 over Blanchet-Fincher in view of Mitsubishi '930 or Mitsubishi '739 and claim 6 have been fully considered and are persuasive. The rejections have been withdrawn.

11. Applicant's arguments filed on 05/12/08 regarding to claims 1, 3-5, 9-10, 14 and 22-25 over Glatkowski et al., Eikos, Inc., or Chen et al. in view of Mitsubishi '930 or Mitsubishi '739 and claim 7 have been fully considered but they are not persuasive.

a. Applicants argue that the Chen reference does not teach the features of a doped conducting polymer and the combination with the Mitsubishi references is not obvious (pages 21 et seq.). The examiner respectfully remarks that the combination of the Chen and Mitsubishi references teach the claimed inventions as the Chen reference teaches a composition with carbon nanotubes, water solvent and conducting polymers and the Mitsubishi references are relied upon to teach the specific chemical of the conducting polymer. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer.

b. Applicants argue that the Glatkowski reference does not teach the features of a doped conducting polymer and the combination with the Mitsubishi references is not obvious (pages 23 et seq.). The examiner respectfully remarks that the Glatkowski reference teaches a composition with carbon nanotubes, conducting polymers and water solvency and the Mitsubishi references are relied upon to teach applicant's conducting polymer. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer. Furthermore, it is noted that all disclosures of the prior art, including non-preferred embodiment, must be considered. See In re Lamberti and Konort, 192 USPQ 278

(CCPA 1967); In re Snow 176 USPQ. 328, 329 (CCPA 1973) and that prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc.* v. *Garlock, Inc.,* 721 F.2d 1540,220 USPQ 303 (Fed. Cir. *1*983), *cert. Denied,* 469 *U.S.* 851 (1984). In this instance, Glatkowski et al. teach each of the components of the composition.

c. Applicants argue that the Eikos reference does not teach the features of a doped conducting polymer and the combination with the Mitsubishi references is not obvious (pages 24 et seq.). The examiners respectfully remarks that the combination of the Eikos and Mitsubishi references teach the claimed inventions as the Eikos reference is relied upon to teach a composition with carbon nanotubes, water solvency and conducting polymers and the Mitsubishi references are relied upon to teach the specific attributes of the conducting polymer. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan. It would have been well within the purview of a skilled artisan in the art to arrive at a composition with enhanced film forming properties via functionalization of the conductive polymer.

d. Applicants argue that claim 7 is not obvious (page 25). The examiner respectfully disagrees as the combination is obvious since a particular known technique (the feature of a silane component to control the rheology of the nanocomposite) was recognized as part of the ordinary capabilities of a skilled artisan. Furthermore, it is noted that the court has held that that a material and its properties are inseparable. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). In this instance, the colloidal silica component would add the same properties of surface hardness and weather resistance to the composition.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRI V. NGUYEN whose telephone number is (571)272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Kopec/
Primary Examiner, Art Unit 1796

/T. V. N./
Examiner, Art Unit 1796
August 22, 2008